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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Sunghoe Yoon

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EXAMINER

QI, ZHI QIANG

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 01/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/748,006	<b>Applicant(s)</b> YOON, SUNGHOE	
	<b>Examiner</b> Mike Qi	<b>Art Unit</b> 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 8-12 and 21-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 13-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 6-7, 13-14 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of US 6,641,874 B2 (Kuntz et al).

Regarding claims 1-3 and 13-14, AAPA discloses (paragraphs 0017-0026; Fig.2)

That the optical film (202-205) comprising:

(concerning claim 1)

- liquid crystal panel (201) having upper plate, lower plate and liquid crystal injected between the two plates;
- polarizing plate (208) disposed on the liquid crystal panel (201);
- optical film (202-205) containing a phase difference film (203) and a linear polarizer (202);
- the linear polarizer (202) having a light transmittance axis perpendicular to a light transmittance axis of the polarizing plate (208), and the optical film (202-205) positioned at a bottom surface of the liquid crystal panel (201).

(concerning claims 2-3 and 13-14)

- circular polarizer (205) containing cholesteric liquid crystal (205b) on a transparent substrate (205a);

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- adhesive layer (209d) on the circular polarizer (205);
- forming a compensation film (204) between the phase difference film (203) and the circular polarizer (205);
- phase difference film (203) formed on the adhesive layer (209d);
- forming another adhesive layer (209c) on the compensation film (204).

AAPA does not explicitly disclose that the linear polarizer contacting the phase difference film or the linear polarizer is directly coating liquid crystal on the phase difference film.

Kuntz discloses (col. 3, lines 26 – 60) a multilayer structure of an optical film wherein the linear polarizer directly coating polymerizable LC (liquid crystal) material on the phase difference film (QWF) (the quarter wave film functions as phase difference film), and also means the linear polarizer contacting the phase difference film; and such that the color effect being enhanced (col.1, lines 55-64). As a general available knowledge, such directly coating and contacting would reduce the thickness of the device, so as to reduce the light absorption and improving the brightness, and such multilayer as an optical film would be direct and easy prepared (col.7, lines 24-26).

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the optical film of AAPA with the teachings of the linear polarizer directly coating liquid crystal or contacting on the QWF (functions as phase difference film) as taught by Kuntz, since the skilled in the art would be motivated for enhancing the color effect such as improving the viewing angle dependent color effect and improving the brightness as a thin multi-layer structure would reduce the light

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absorption, and would be direct and easy prepared (col.6, lines 1-8 and col.7, lines 24-26).

Regarding claims 6-7 and 19-20, AAPA teaches the invention set forth above except for that the thickness of the optical film at most about 200  $\mu\text{m}$  and the linear polarizer has a thickness of a few  $\mu\text{m}$ .

Kuntz discloses (col.4, lines 49-51) that the linear polarizer has a thickness from 0.1 to 10  $\mu\text{m}$ , i.e., a few  $\mu\text{m}$ .

In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists (see MPEP. 2144.05 I.).

Kuntz further discloses (col.4, lines 55-57) that the total thickness of the circular polarizer (linear polarizer laminated on phase difference film) is preferably from 0.2 to 20  $\mu\text{m}$ . As a general available knowledge, the films should be made as thin as possible, so as to reduce the light absorption and increase the luminance. Such that the total thickness of the optical film at most about 200  $\mu\text{m}$  (less than 200  $\mu\text{m}$ ) would have been at least obvious.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the optical film of AAPA with the teachings of the thickness of the linear polarizer and total thickness of the circular polarizer as taught by Kuntz, since the skilled in the art would be motivated for achieving the optical film as thin as possible so as to increase the luminance.

3. Claims 4-5 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA and Kuntz as applied to claims 1-3, 6-7, 13-14 and 19-20 above, and further in view of US 6,882,386 B2 (Moon et al).

Regarding claims 4-5 and 16-17, AAPA and Kuntz teach the invention set forth Above except for the linear polarizer comprising a lyotropic liquid crystal contains dye or pigment.

Moon discloses (col.9, lines 56 – 60) that the linear polarizer comprising a lyotropic liquid crystal (formed by coating lyotropic liquid crystal). Kuntz further discloses (col.3, lines 45-46) that the linear polarizer is prepared by coating liquid crystal material having a dye. Moon indicates (col.3, lines 1-5) that such display device preventing light leakage so as to increase the luminance.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the optical film of AAPA and Kuntz with the teachings of the linear polarizer using lyotropic liquid crystal as taught by Moon, since the skilled in the art would be motivated for preventing the light leakage and increasing the luminance (col.3, lines 1-5).

4. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA and Kuntz as applied to claims 1-3, 6-7, 13-14 and 19-20 above, and further in view of US 5,110,623 (Yuasa et al).

Regarding claim 15, AAPA and Kuntz teach the invention set forth above except for that the liquid crystal is coated by a method of bar coating, knife coating or slit-die coating method.

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Yuasa discloses (col.13, lines 56-69; Fig.1) that the liquid crystal material (1) being coated into a film using bar coating method, and such coating method can be easily performed.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the coating method of AAPA and Kuntz with the teachings of bar coating as taught by Yuasa, since the skilled in the art would be motivated for achieving easily performing the coating (col. 13, lines 56-69).

5. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA and Kuntz as applied to claims 1-3, 6-7, 13-14 and 19-20 above, and further in view of US 6,879,356 B2 (Hsieh et al).

Regarding claim 18, AAPA and Kuntz teach the invention set forth above except for that the linear polarizer has an E-mode polarization.

Hsieh discloses (col.2, lines 53 –62) that linear polarizer having E-mode polarization (E-mode polarizer) to enhance brightness and viewing angle property and prevent color shift.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the coating method of AAPA and Kuntz with the teachings of the linear polarizer using E-mode polarization as taught by Hsieh, since the skilled in the art would be motivated for enhancing brightness and viewing angle property and prevent color shift as E-mode polarizer enables extraordinary light to pass (see col.2, lines 53 –62).

***Response to Arguments***

6. Applicant's arguments filed Dec.12, 2005 have been fully considered but they are not persuasive.

1) The claimed invention is a multilayer structure of an optical film. The reference Kuntz is relied in to teach (col. 3, lines 26 – 60) a multilayer structure of an optical film wherein the linear polarizer directly coating polymerizable LC (liquid crystal) material on the phase difference film (QWF) (the quarter wave film functions as phase difference film), and also means the linear polarizer contacting the phase difference film; and such that the color effect being enhanced (col.1, lines 55-64). As a general available knowledge, such directly coating and contacting would reduce the thickness of the device, so as to reduce the light absorption and improving the brightness, and such multilayer as an optical film would be direct and easy prepared (col.7, lines 24-26).

***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the



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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (571) 272-2299. The examiner can normally be reached on M-T 8:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Qi  
January 11, 2006

  
ANDREW SCHECHTER  
PRIMARY EXAMINER